BEFORE THE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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WEST COAST DINNER, :

JAMES M. BEGGS :

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Thursday, January 20, 1983.

P R O C E E D I N G S

MR. ADAMS: I'd like to introduce our honored guest, the honorable James M. Beggs, Administrator, National Aeronautics and Space Administration.

MR. BEGGS: Thank you very much, Larry Adams, my good friend.

I'm delighted to be here. This will be my second appearance before the NSIA, and I'm very pleased by that flattering introduction.

And knowing he was going to do that, I looked up that small quatrain from Jonathan Swift which goes as follows: Tis an old maxim in the schools that flattery is the food of fools, yet now and then your men of wit will condescend to take a bit. And I will. And I thank you, Larry.

It is the second time that I've come before you since I left the Board, and I'm delighted. I see many of my old friends out there and I'm delighted to join you again. We have two live astronauts in the audience who turned out tonight, and I'm delighted to see them.

Our alumni don't come back as often as we'd like. Buzz Aldin and Gordon Cooper are here tonight, and we're very pleased to have them with us.

As I said, I've been before this audience now

two times and that's dangerous in Washington politics, as all of you know. And I know you know Washington politics. You don't come back to the same organization twice, because of a governmental official comes back twice he has to write a new speech. And I'm back here with the same old speech. I'm going to talk about the same thing that I talked to you about before.

We are coming upon a milestone in the history of the space agency. America's space program is 25 years old, or will be 25 years old as of October, so we are in our Silver Anniversary year, and we are preparing to celebrate that throughout this year and I know that a number of you here in this audience are going to celebrate that with us and we welcome you into that celebration.

It has been a very, very splendid 25 years. And I'm going to use the word "we" tonight an awful lot, and I don't mean that we as an editorial we, I mean that we as a plural we, because this has been an adventure and a succession of successes which have involed NASA, the industry, the university folks, and all of us together in a way that the rest of the world can only envy. It has really been a splendid experience.

I'd like to look back, if I may, on what we started out to do and then talk a little bit about some of the adventures that we have had together, and then

perhaps project a little bit into the future.

When the National Aeronautics and Space Act was passed it called out several mandates for the agency. The first was to go into space for peaceful purposes, and that was really the beginning and the end. But it also said that we should go into space for the general welfare and security of the United States; and that we should go into space to expand human knowledge; and that we should go into space to preserve the United States' leadership in aeronautics, space science and technology.

How have we done? Well, you be the judge. We have put 12 men on the moon. We started out by visiting our neighboring planets and put orbiters around Venus and Mars and then landed on both Venus and Mars. We have flown by Mercury, and we have now gone out beyond the astroid belt and flown by Jupiter, Saturn; we're now on our way to Uranus, where we will arrive in 1986; and by 1989 we will have gone by Neptune; and so we will have seen at close range the whole scope of the solar system by the end of the decade. We will not get a close glimpse of Pluto, but we will have seen all the others, so we will have done what we set out to do as the first generation.

We've studied our Sun; we've studied our small planet in ways that were only dreamed of just 20 years ago.

We know more about what makes us tick; we've learned more about our place in the Universe than in all the previous history of man.

And now we begin a new era, because we have put in place that which the early folks who started to plan this program only dreamed, and that is a reuseable spacecraft, the Shuttle, which provides routine access to space and which will allow us to explore in a way that we only just touched up until now. And I believe that we will extend that very soon with an orbiting space station, and then extend that to manned flight into geosynchronous orbit and then back to the moon, and without any question we will go to Mars.

And I like to call that our scenario for the next century, although some of the young folks I spoke to here recently said, You are not doing us enough justice; we can do that much sooner. And I hope they do.

And we have done this in a peaceful way. The program has been constructed and carried out as mandated, to explore space primarily in a peaceful sense.

But, and I think we all take great pride, we have passed off the understanding and the new knowledge in order to enhance our security.

But the American public, when they look at the space accomplishments, look at them with pride, not fear,

when the look up at night, or even in the daytime, and realize the accomplishments of our program; they realize that we have done that primarily out of good intentions and good motivation.

When we turn on the television set and see the Olympics from abroad, or Charles and Diana's wedding, if you will, or any of the other news broadcasts which become routine to receive pictures and voice and all the other things from all over the world, we realize the benefits; when we turn on the television in the morning and see weather maps drawn from space, realize that we have orbiting Earth resources satellits which enable us to more accurately predict world crop yields, enable us to start to understand how to explore for minerals more accurately and with greater certainty. We are just starting to understand and starting to appreciate the value of the program.

Space indeed is still our friend and I believe that it will continue to be our friend into the foreseeable future.

But we also have gone into space, as mandated by the Congress, for the general welfare and security of the United States. The R&D that we have done has greatly benefited the country both militarily and in the civilian sphere.

We have developed weather, navigational, communication satellites, and we've turned over many of these to others to use, and indeed there are a number who are making a few bucks off of those and we're very proud of that. We hope there will be more who make money on them, because when we turn them over to the entrepreneurs and to our industrial partners, they turn into jobs, they turn into tax revenues, and they turn into increased investment in the future.

We're proud of the contributions of that program, and they have been many. I think that we sometimes forget that when we explore at the edge of technology we also help our industry develop its competitive skills. There is no question that the program in computer sciences, in solid-state electronics and medical electronics, in industrial gases in many fields, that-- well, I guess I'm constantly amazed, because I have people visiting me in my office all the time who say, Do you realize that just 20 short years ago my business was very much smaller, or my business did not exist, and if it had not been for the program, we would not be out there employing X number of people and doing all these good things in the economy.

And I think we've got to constantly keep that in mind. And I'll have a little more to say about that

later.

We've worked closely with the Pentagon over the last 25 years, and I think that it's been a very good association. We have today and we have had a very good relationship with our national security interest.

There has been a good deal of publicity, particularly in the last year. The media seems to be focusing on the question of whether NASA is going to be militarized or whether we are going to militarize the space program or whether in the future the space program might not become just an adjunct of the Pentagon.

Let me assure you that with the President's statement this past year on space policy, where he re-assured and restated the objectives of the Space Act, that there would continue to be a strong focus on the civil program, but at the same time we expected to use the technology to assure the national security of the United States.

This audience needs not be reminded that we live in a dangerous world. You have only to pick up the daily newspaper to know that we are under attack around the world. We are a nation which basically is motivated by material and wealth producing activities. We believe in a constantly advancing standard of living for our people.

I think we must constantly remind ourselves that the rest of the world, at least a large part of the rest of the world, is not so motivated. In fact, a large part of the world is motivated primarily by power. And because of that, we must constantly be on our guard.

The president, President Reagan, is trying to readdress a badly imbalanced situation, and my small agency is going to help to do that.

There is a recent book out on Winston Churchill, which I urge all of you to read, called Churchill, The Wilderness Years, and it's also--the Mobil Corporation is putting it in public television for eight weeks, and it is a very sobering and modern presentation.

Churchill from '29 to '39 was out of the government, and from about '33 on he was constantly reminding the English government and the English people of the growing threat from Germany, and all of the arguments that we hear today on why we should not maintain our security posture were present in those years.

You know, they were the same we can't afford it; and don't worry, they're eventually going to spend themselves into bankruptcy; and golly gee wiz, their intentions are honorable, they only want to get parody with us; and then finally, there is no mandate from the people to spend all this money to rearm.

And Churchill made an answer which I think is as true and as modern today as it was when he uttered it. He said, The prime responsibility of any government for the public's safety is absolute and requires no mandate.

And if that isn't true today, I don't know what is.

It is interesting to me that the press has made so much of militarization. The facts are that most of the budget of NASA goes primarily for civil purposes. But we are charged with helping our national defense and we shall continue to do that. We should be required to share our work and our activities with the department and we defer to the DOD in all matters which may be peculiar or primarily associated with the development of weapon systems, military operations or the defense of the United States. And that, of course, touches on everything that we do.

Most space activities have a dual capability. Even the most simple weather and the most simple and direct communications satellites have a military purpose if they are so used, just as the Wright Brothers in pursuing aeronautics in the early part of this century found that it had a military purpose as well as a civil purpose.

It is a rare technology which cannot be used effectively to assure our security, but that does not mean that the technology we developed has a main security thrust.

We believe that our work in space is primarily directed towards the expansion of knowledge, and that is indeed the prime mandate of the agency. And just as the hallmark of a great nation is that they should be militarily strong and economically strong, so too the hallmark of a great nation is that we should continue and must continue to explore at the edges of knowledge. And that indeed is what we are up to.

We are charged with maintaining the preeminence of the United States in space and in aeronautics, and we take that charge very seriously. As I stand here tonight, we are still winning that race; we still are preeminent in aeronautics and space in the world, but that lead has very definitely been narrowed in the last decade and I think we must look to our laurels in the next decade if we expect to continue to be the pre-eminent space-faring nation.

I'm constantly asked when I go up to the Congress, what are the benefits that flow from your program. We've done a lot of studies on this; we've looked at it from almost every direction. I have in the

files and I've read a number of studies by eminent economic institutions which seem to say that our return off the expenditures--and we spent about $130 or $140 billion since we started into this adventure in 1958--that the return from that averages about 20 to 30 percent a year.

And I would suggest that's a very good return. I don't know whether I believe, but I think that I believe that the return has been very large.

I'm not all that sure that the quantifying of the benefits is all that important. What is important is that we recognize as a society that what we are doing is enormously motivating. It is a constant source of pride to me to go down to any of the launches, particularly the manned launches, when we may have upwards of a million people down there, and see the pride and the intense interest of the pulic in those launches.

It is particularly true for the young people when I go around and talk in the universities and see the interest in the program in the universities and the stimulation and the motivation it provides for them to continue their work, not only in the engineering and physical sciences, but in any other area. Because, you know, that old saying, If we can go to the moon, or if we can do these magnificent things in space, then by

George, I can do splendid things myself; I can set my goals high. And I think that's very important for our society.

If we could quantify all these benefits I might do a little better over at the OMB year by year, although I must say that this administration has not been too bad for the space agency. We have not done too badly.

President Reagan's initiatives in trying to revitalize the R&D in this country has met that the agency has received increasing budgets for the last two years, and we will go into fiscal year 1984 in very good shape. We expect to have a few new starts in that year and to start to reap the benefits of what we have achieved in finaly reaching the end of the development of the Space Shuttle.

We are, however, not the only country competing in the space race. If we were the only country we could perhaps ignore the new challenges. We could perhaps do as Senator Proxmire has suggested from time to time, that My word, the planets are going to be there for another several million years and the universe is not likely to disappear over the next several thousand years and let's put it off and put it on the back burner.

Unfortunately, we're not the only country on earth and we're not the only country which realizes that this is a race and the race is to the swift. We have competition and the competition is growing; not only our friends in the Soviet, who have been flying men on space stations for the last several years and who now have operating a very large space station, Salute VII, but also the Eurpoeans, who are coming fast in the applications areas of space, who have a launch vehicle of their own, and who are competing with us around the world. And the Japanese are not far behind.

We think that we are still willing in this country to devote the resources, to devote the time, devote the talent to do the job. It's my view that the Shuttle will in several years turn into a real live business. I think we will break even on a cash basis sometime over the next several years, and by that time, I hope that we will pass it over to the private sector and give them a chance to operate it, with the only priviso that they provide the necessary priority service to the Pentagon for the national security missions that are required.

We will as we pass to the commercial air on the Shuttle to more consideration in devoting considerably more of our resources to a space station and to the

space sciences to looking at the problems of the world in an environmental and global kind of sense. And if we do that, in my view, by the end of the decade we will have an operational space station which will have enormous and even more potential for industrialization of space and the earning of a few bucks from it.

In the last decade we may have been sending the wrong message to the world and that may be one of the reasons that they're competing as they are. We started to draw away from our thrust into space and we have only since, only in the recent few years been returning to that.

If we move in that direction we will send the right message to them. We must start to plan for the next two decades, because two decades, the next 20 years, we'll realize more and greater benefits than we ever realized when we started out on this adventure just 25 short years ago.

I'd like to now turn to consideration of that partnership I spoke of earlier. We've had a very effective and I think beneficial partnership with the industry and with our university friends in pursuing this program for the last 25 years. It's resulted in a lot of new products, a lot of new services. The technology transfer that we have done has been very

great, and I think it has benefited the nation to an extent that few of us can really take cognizance of in the current times, because many of the things are just developing.

But we face an enormous challenge in this country. We are falling behind in industry after industry. Part of the problem in this country is that over the last 10 years, it will be 15, we've developed an adversarial relationship between the business community and the government. It almost seems as though we want to fight instead of cooperate.

That wasn't true in an earlier day and I believe, and I hope I'm right in this surmise, that the cooperation that we've achieved in NASA with the industry has been a direct and perhaps been a highlight of what can be done with good cooperation between government and industry. We're trying to expand that.

We have had a program of technology transfer, and with the aerospace community, and all of you in this audience tonight who know us, I think you will agree that the relationship has been very good and has paid large dividends.

We are trying to expand that to open our centers in a way that the rest of industry can take advantage of what we're doing. Not in the sense that we're trying

to give anything away; in the sense that we're paying for this program with tax dollars, and the whole broad community of our industry and our university community and all of the other folks who are trying to get started in whatever business to compete in the world have access to the best technology that we can give them.

It's a very, very tough world out there. None of the research that we do in this agency is worth a tinker's damn unless you pick it up and convert it into products and services. You are the important transition between our research and products in the marketplace.

I try to keep in mind that old folk saying which goes, The man who things he can live without others is mistaken; the one who thinks others can't live without him is even more deluded.

We in NASA need the cooperation; we need your expertise; and we need more and more day by day close communication. I've spent most of my life in business. Product success I know is the most difficult thing that faces a businessman. Three-quarters or more of the new products fail or don't achieve the potential that we envision for them.

We are threatened in the commercial sector from all directions. Many of our older industries are now completely noncompetitive. I'm told, and as near as

I can tell from my visits to Japan, that the Japanese can produce a ton of steel for about half the man hours that we can; they can produce an automobile for about three-quarters of the man hours that we can. It's time we looked back to the source of our strength, which has been since the origins of the republic what we like to talk about and refer to as the team effort; putting it all together and working together in a way that we can truly compete. And I believe that we can compete.

In NASA, we recognize that we need the help of the entrepreneurial section of our economy. We want them to work with us; we cannot be successful without them. We're trying to attract entrepreneurs into our activities; we're trying to make sure that as we move forward in the exploitation of space with the Shuttle that we bring as many and as large a sector and, organized as well as we can organize it, so as to make our space activities over the next decade as competitive as it's possible to make it.

One of the things that I think we have made a very bad mistake in the last decade, or the last couple decades, is that we have insisted in the government sector that patents developed under government contracts are the property of the government.

The result of that is that patents in many

cases have been put on the shelf and have been never reduced to practice.

My friend Jerry Mossinghoff, who served in NASA and who is now the patent commissioner, is trying to change that and I am trying to help him. We believe a change in the law which will allow the originator of the patent to have the rights to it, so long as he pursues the effort to reduce the practice and convert it into practical and commercial opportunities, is the proper place to put it.

Jack Schmidt, who was trying to push that bill through the Congress and whom we all know didn't make it back to the Congress this time, did a yeoman job in starting that activity, and there are a number in the Congress who are willing to pick up that activity and bring it through to a statute.

In the meantime, I'm going to use the authority that I have to grant waivers and to ensure that the patents developed under our contracts are given to the industry so that they can develop them, reduce them to practice, and make practical products out of them.

We've got a long way to go. We've come an enormous way in 25 years, but we've got a long way to go.

The English historian Charles Oman (phonetic)

wrote, A new envisionment of the world has begun and men no longer sigh after the imaginary golden age that lay in the distant past, but speculating as to the golden age that might possibly lie in the oncoming future.

The immediate future in space is clear. We have the Shuttle; we'll be flying quite a lot; and we will be able to open up opportunities which we hope that you will take advantage of. We'll be flying five missions this year; 10 next year; 14 in '85; 16 in '86; and then working up to the flight rate of 24, which we think is the intermediate flight rate for the four orbiters that we have currently on order.

In 1985 we'll launch the large space telescope; in 1986 we'll launch two scientific satellites. Two astrophysical satellites will be launched from the Shuttle in 1988, and in 1988 we'll launch the solar optical telescope.

This year will be a great year for space. My friend Lou Allen sitting down here assures me we're going to get the ARAS off maybe next week, or the week after, and we will be doing a lot which will appear on your television screens and I think will create a great sense of excitement for the Silver Anniversary.

We can see the next decade very clearly, The decade after that is perhaps a little more dim, but

nevertheless, clearly in focus.

I believe that when the next supernova appears, and we're over 200 years overdue for a supernova, we will have in place a space station with a supernova watch in place and we'll also have that large space telescope operational, which will enable us for the first time perhaps to understand the origins and the life and death of stars in the universe and so understand better where we came from and perhaps where we're going.

I don't know where we'll be in 25 years, but I do believe that just as we didn't know what we were about when we created and started out on this adventure 25 years ago, that when the NASA administrator stands up at this podium 25 years from now he will talk of wonders and adventures and new dreams that we yet cannot even think about.

They will no doubt ask 25 years ago, just as we have asked in the past, as Edward Robinson said, Where was he going, this man against the sky; you know not, nor do I.

But we will know if we continue to pursue the dream, the adventure, and the fun of exploring space.

But make no mistake, the race is to the swift, and we are being challenged and the challenge is very large.

Let me put it in a form of statistics to you. Last year, or the year before, the Soviets graduated 300,000 engineers, and the Japanese, with half our population, graduated 75,000, and we graduated 60,000. Japan, our major commercial adversary in the world, is outdistancing us in trained technical people; the Soviet is graduating five times our number, our major adversary in the military and political arena of the world.

Ladies and gentlemen, we must look to our laurels if we expect to continue to lead. We will have a lead; we are still preeminent; but our lead is narrowing and the danger is near.

If we do not, then we will have given up what has been perhaps the greatest and most magnificent political adventure in the history of the world. But I don't believe we'll do that. I think we shall go on; I know we have the motivation; I know we have the will; I know we have that great dream of exploration, that great understanding that the hallmark of a great nation is to continue to explore at the edge of our understanding.

And it was that that T.S. Elliot meant when he wrote that small quatrain, which is a favorite of mine, and some of you have heard me quote this before: We shall not cease from exploration in the end of all of

our exploring to arrive at where we started and to know the place for the first time. And that says it all.

Thank you very much.

MR. ADAMS: Administrator Beggs, we thank you very much for not only a very informative but a very inspiring talk to us this evening, and I'm sure you've turned on a whole bunch of people to go out and do better on all the things we're doing in your programs.

One more round of applause for that.

Okay. We now invite you to remain for dessert and dancing, which will follow immediately.

Thank you.

(Thereupon, the proceeding was concluded.)